

## A NEW *THOMASOMYS* (MAMMALIA: RODENTIA) FROM THE PERUVIAN ANDES

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*Abstract.* — We describe a new species, *Thomasomys macrotis*, from the eastern slope of the Andes of northcentral Perú (department of San Martín, Río Abiseo National Park). This rodent is a large-bodied, big-eared, but relatively short-tailed thomasomyine inhabiting the wet montane forest near the upper limit of the continuous forest zone. It is the second large, previously-undescribed *Thomasomys* to be found in the park.

*Resumen.* — Describimos una nueva especie, *Thomasomys macrotis*, de la vertiente oriental de los andes al norte del Perú (departamento de San Martín, Parque Nacional Río Abiseo). Este roedor thomasomino de cuerpo y orejas grandes, pero de cola relativamente corta, habita el bosque húmedo montano cerca al límite superior de la zona de bosque continuo. Este es el segundo *Thomasomys* grande, anteriormente desconocido, encontrado en el Parque.

The Peruvian Association for the Conservation of Nature (APECO) recently completed a 4-year (1987–1990) biological inventory of the Río Abiseo National Park, San Martín, Perú. A new giant thomasomyine, *Thomasomys apeco*, was found during the first year and recently described by Leo & Gardner (1993). A second species represented by one specimen, also collected during the first year and sympatric with *T. apeco*, is a large, big-eared, and relatively short-tailed *Thomasomys* unlike any thus far known. Subsequently, we found three additional specimens in the mammal collection of Louisiana State University Museum of Zoology, Baton Rouge (LSUMZ), collected in 1981 from a nearby locality in the park. The Río Abiseo National Park, centered at approximately 07°45'S, 77°15'W, covers 2745 square kilometers on the eastern (Amazonian) slope of the Andes and encompasses most of the Río Abiseo watershed, which drains into the Río Huallaga (Leo & Gardner 1993). The western boundary of the park lies along the border between the departments of La Libertad and San Martín. The elevational range is from near

1000 to more than 4000 m and includes at least five habitat zones according to the Holdridge Life Zone classification (Tosi 1960). Young & León (1988) suggest that two additional life zones (Tropical Montane Wet Forest and Tropical Lower Montane Wet Forest) be recognized in the park. Surveys during the first year of study were at higher elevations (from about 3000 to 3600 m) in Tropical Subalpine Pluvial Paramo and Tropical Montane Rain Forest (Paramo Pluvial Subalpino and Bosque Húmedo Montano, respectively; Tosi 1960). The new thomasomyine we describe here was caught in tropical montane elfin forest habitat; it may be known as:

*Thomasomys macrotis*, new species

*Holotype.* — Adult female, LSUMZ 27286, from Puerta del Monte, ca. 30 km NE [of] Los Alisos, ca. 3250 m [Parque Nacional Río Abiseo], San Martín, Perú. Collected by Linda J. Barkley on 13 August 1981. The holotype is a well-made skin in excellent condition with cranium, dentaries, and partial post-cranial skeleton that includes a

complete left forefoot and complete right hind foot (Fig. 1; right forefoot and left hind foot remain in the skin).

*Paratypes.*—Young adult female, LSUMZ 27285; adult male, LSUMZ 27287, both from the type locality and collected by L. J. Barkley on 8 August and 15 August (respectively), 1981. Young adult female, USNM 567243, from Pampa del Cuy, 24 km NE of Pataz, 3380 m, Parque Nacional Río Abiseo, San Martín, Perú, collected by A. L. Gardner on 11 August 1987.

*Distribution.*—Known only from elfin forest habitat in the Pampa del Cuy Valley.

*Etymology.*—The name refers to the unusually large ears, the most obvious feature of the species when encountered in the field.

*Diagnosis.*—*Thomasomys macrotis* is a large-bodied, big-eared thomasomyine with a long hind foot and comparatively short (1.34 times head and body;  $n = 4$ ), basally dark brown and distally white tail. It is intermediate in size between the smaller-bodied, but longer-tailed *T. aureus* (Tomes, 1860) and the much larger *T. apeco*, both of which are sympatric (Table 1). Diagnostic features include broad, spatulate nasals that extend only barely beyond the anterior plane of incisors and terminate behind premaxillary-frontal sutures; postorbital constriction with rounded upper borders and lacking ridges (Fig. 2); jugal strongly developed; tooth-bearing portion of maxilla unusually deep above M1 and tapering posteriorly to root zone of M3 where maxilla is dorsoventrally thin (Fig. 3); auditory bullae medium-sized to large with posterior and upper anterior border of auditory meatus unusually inflated (Fig. 4); zygomatic plate terminating on a line behind procingulum of first upper molar (M1); procingulum of M1 with smooth anterior face; anteromedial flexid of first lower molar (m1) shallow and narrow (dental terminology follows Reig 1977; also see Carleton & Musser 1989); cusps on all teeth robust and separated by relatively narrow flexi and flexids; oblique orientation of paralophs, metalophs, and

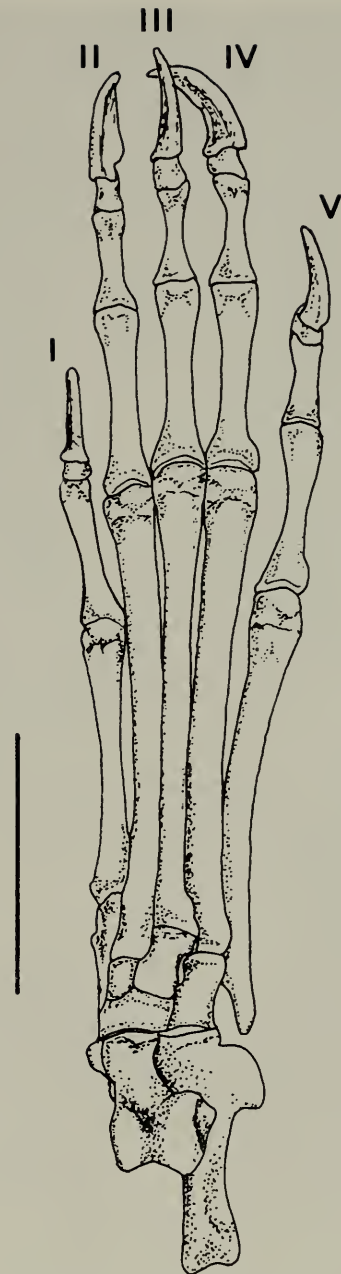


Fig. 1. Left pes of the holotype of *Thomasomys macrotis*, new species, LSUMZ 27286. Vertical line equals 10 mm.

metalophs in first two molars, and entolophid of m1; lateral orientation (at right angle to median murid) of entolophid of m2; M3 wider than anterior-posterior length; posteroloph in m1 straight, not crescent shaped; m3 relatively broad posteriorly with hypoflexid extending across approximately three quarters width of tooth; margins of lophs, lophids, mures, and murids, “wrinkled” or crenulated (especially evident in relatively unworn teeth; see Fig. 5a, b).

Table 1.—Measurements of *Thomasomys aureus* complex, *Thomasomys macrotis* new species, and *Thomasomys apeco*. Linear measurements are in millimeters and mass in grams; values are the mean followed by range (in parentheses) and sample size. See "Additional specimens examined" for sources of *T. apeco* and *T. aureus*.

Measurements	<i>T. aureus</i>	<i>T. macrotis</i>	<i>T. apeco</i>
<b>Length</b>			
Total	374.3 (350–421) 14	362.2 (345–387) 4	514.3 (469–560) 9
Tail	220.1 (208–248) 14	207.0 (193–219) 4	307.0 (279–329) 9
Hind foot (cu)	36.5 (33–41) 18	46.0 (44–48) 4	54.0 (50–59) 9
Ear (from notch)	23.1 (21–24) 18	31.2 (28–33) 4	29.4 (27–31) 9
Skull (greatest)	38.2 (34.6–41.8) 20	40.9 (38.0–42.8) 4	48.3 (44.3–51.0) 9
Condylobasal	35.8 (31.9–40.1) 21	38.7 (35.1–41.3) 4	45.4 (41.9–47.8) 9
Condyloincise	34.1 (30.7–38.6) 21	38.2 (34.3–41.0) 4	44.9 (41.5–47.6) 5
Palatilar	15.9 (13.9–18.4) 21	17.8 (16.4–19.2) 4	21.6 (20.1–22.6) 5
Postpalatal	13.9 (12.5–16.5) 21	15.0 (13.3–16.2) 4	17.5 (15.5–18.7) 5
Incisive foramina	8.1 (7.1–9.1) 21	8.5 (7.6–9.1) 4	10.6 (9.4–11.7) 9
Nasal	14.4 (12.4–15.8) 20	14.4 (13.1–15.4) 4	17.9 (16.3–19.1) 9
Rostrum	14.2 (12.4–16.0) 20	15.3 (13.8–16.3) 4	18.3 (16.1–19.8) 5
Maxillary toothrow	7.2 (6.8–7.8) 21	8.1 (8.0–8.3) 4	9.7 (9.5–10.0) 5
Mandible	21.6 (19.5–23.5) 21	22.8 (22.3–26.3) 4	28.5 (27.0–29.8) 5
<b>Breadth</b>			
Zygomatic	20.0 (18.6–21.4) 21	22.1 (20.4–23.2) 4	25.8 (23.6–27.4) 9
Mastoidal	14.8 (13.9–15.9) 18	16.7 (15.9–17.3) 4	17.9 (17.2–18.6) 8
Postorbital	4.8 (4.3–5.3) 21	5.9 (5.5–6.4) 4	5.2 (4.9–5.4) 9
Across molars (M2–M2)	7.7 (7.3–8.5) 21	9.2 (8.6–9.7) 4	10.0 (9.2–10.6) 5
Palate (post-dental constriction)	6.0 (5.4–6.8) 21	6.2 (6.2–6.3) 4	7.4 (6.9–7.9) 5
Rostral	6.8 (6.1–7.4) 21	7.7 (7.2–8.2) 4	8.9 (7.8–9.9) 9
Zygomatic plate	3.2 (2.5–4.0) 21	3.9 (3.5–4.2) 4	4.1 (3.2–4.4) 5
<b>Depth</b>			
Braincase	11.1 (10.2–11.9) 21	12.2 (11.5–12.8) 4	13.4 (13.0–14.0) 5
Mass	91.8 (58–136) 9	115.5 (64–166) 4	232.0 (164–335) 9



Fig. 2. Dorsal, ventral, and lateral views of the cranium, and lateral view of the mandible of the holotype of *Thomasomys macrotis*, new species, LSUMZ 27286. Vertical line equals 10 mm.

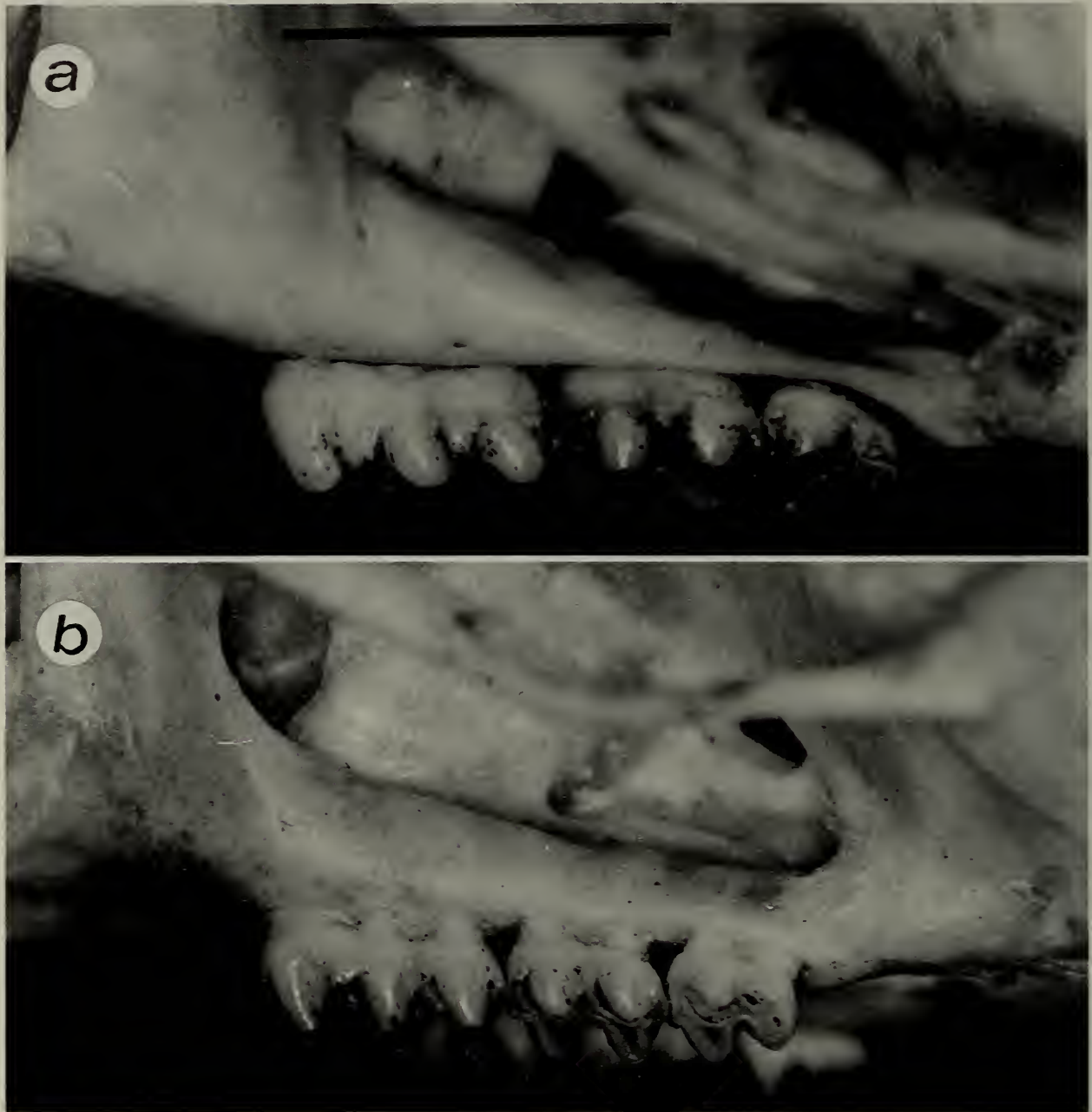


Fig. 3. Lateral view of tooth-bearing portion of left maxillae of *Thomasomys macrotis*, new species, LSUMZ 27286 (a), and *T. aureus*, MLL 390 (b). Horizontal line equals 5 mm.

*Measurements of holotype.*—Measurements are in millimeters and weight (mass) in grams; external measurements are those made by the preparator recorded on the label: Total length, 372; head and body, 153; tail, 219; hind foot (with claws), 47; ear (from notch), 33; greatest length of skull, 42.8; condyloincisive length, 41.0; palatilar length, 19.2; post palatal length, 16.2; length incisive foramina, 9.1; zygomatic breadth, 23.0; braincase breadth (taken below parietal root of zygomatic arches), 17.7; interorbital constriction, 6.0; breadth across molars (M2-

M2), 9.6; palatal breadth (across post-dental constriction), 6.3; rostral breadth, 8.0; rostral length, 16.2; breadth of zygomatic plate, 4.2; breadth of mesopterygoid fossa, 2.6; depth of braincase (from lower surface of basisphenoid and basioccipital to top of cranium), 12.3; length of dentary, 26.1; length of maxillary toothrow, 8.3; alveolar length of maxillary toothrow, 8.7; alveolar length of mandibular toothrow, 8.6; mass, 140 g.

*Additional measurements.*—See Table 1 for additional measurements.

*Description.*—Fur long (as long as 15.0



Fig. 4. Lateral view of left auditory bullar region of *Thomasomys macrotis*, new species, LSUMZ 27286 (a), and *T. aureus*, USNM 507266 (b). Horizontal line equals 5 mm.

mm middorsally) and lax; individual hairs with extensive dark-gray base and paler tips. Guard hair is also gray based, but broadly darker tipped. Dorsum Bone Brown to Sepia (capitalized color terms from Ridgway 1912) finely streaked with pale brown imparting an agouti pattern. Color darkest middorsally becoming gradually paler laterally where it grades into Sudan Brown or Argus Brown over sides and flanks, and blends into Pinkish Cinnamon on venter

and inside of legs. Fur on throat dark gray at base, tipped with white, and conspicuously paler than remainder of venter. Hair on margin of lips pale buff; lips otherwise blackish and conspicuously darker than color of throat and base of vibrissae. Area surrounding eye and anterior to and below eye at base of vibrissae also conspicuously darker than remainder of head, which otherwise is pigmented like the dorsum. Ears large, clothed inside and out with dusky brown

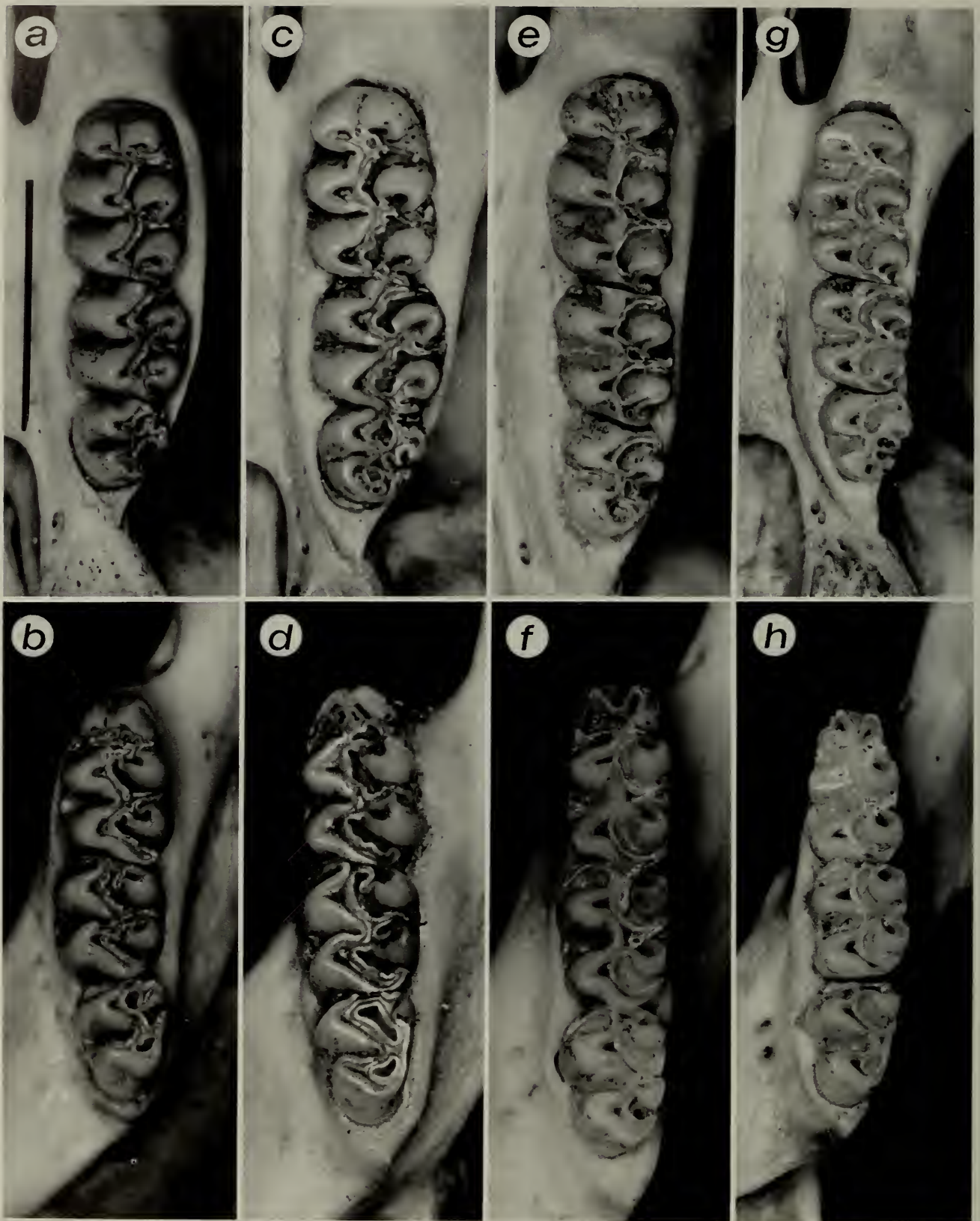


Fig. 5. Left maxillary (upper row) and mandibular tooththrows (lower row) of *Thomasomys macrotis*, new species, USNM 567243, *a, b*; LSUMZ 27286, *c, d*; *T. apeco*, MUSM 7197, *e, f*; *T. aureus*, USNM 507266, *g, h*. Vertical line equals 5 mm.

hair, and lack evidence of a pale rim. Head also with a weakly-defined Pinkish Cinnamon spot below and just behind ears. Dorsal surface of hind feet dark, colored like dorsum of body, but with paler claws and digital bristles; metacarpals of forefeet dark with paler toes, claws, and digital bristles. Tail longer than head and body (126 to 143%), and uniformly dark brown except for terminal one-third to two-fifths where both scales and hairs are white. Mystacial vibrissae long (longest 65 to 70 mm), a few uniformly dark brown throughout, but most with broadly pale tips. Superciliary and subocular vibrissae few in number and shorter than mystacial vibrissae. Hind feet long with plantar surface naked to ankle. Hallux shortest toe, base of claw extending just beyond metatarsal-phalanx joint of digit II and tip of claw not reaching joint between second and third phalanges. Digit II slightly shorter than subequal digits III and IV. Claw tip of digit V extends to approximately mid-length of second phalanx of digit IV (Fig. 1).

Skull, although large and robust, typically thomasomyine (*sensu* Steadman & Ray 1982:15) in dental topography, length of hard palate, lack of overhanging postorbital ridges (Fig. 2), and presence of strut from mastoid extending anteriorly above and across ectotympanic to overlap squamosal in front of hamular process of squamosal (Fig. 4). Rostrum comparatively broad and deep, and with tapering, anteriorly-truncated and spatulate nasals whose tips protrude only slightly beyond anterior plane of upper incisors. Dorsal branches of premaxillae short, not reaching distal ends of nasals and terminating at or anterior to level of zygomatic notch (Figs. 2, 6). Zygomatic plate broad, its posterior margin terminating at approximate level of protoflexus of M1, but its anterior border not occluding openings to nasolacrimal capsule when viewed laterally. Jugal large, its greatest depth approximately equal to or greater than distance between maxillary and squamosal

portions of zygomatic arch (Fig. 7). Supraorbital region elevated laterally with rounded, non-overhanging borders and a shallow median depression extending from near anterior border of interparietal to anterior third of nasals. Dorsal exposure of lacrimals comparatively broad, each with a posterior median projection. Alisphenoid strut present, but weak (incomplete on left in holotype). Auditory bullae medium-sized to large for genus. Upper border of incomplete ectotympanic ring forming auditory meatus (below second [posterior] dorsal postglenoid fossa) notably swollen and its terminus blunt (Fig. 4). Ventral surface of periotic broadly exposed. Mastoid fenestra small. Squamosal-alisphenoid groove (for supraorbital branch of stapedia artery) and sphenofrontal foramen absent; stapedia foramen small. Mesopterygoid fossa of uniform width, not expanded anteriorly; its width equal to or less than width of either parapterygoid fossa (Fig. 2).

Molar-bearing portion of maxilla unusually deep at level of M1 and tapering posteriorly to level of M3 where the bone is dorsoventrally comparatively thin (Fig. 3*a*). Roots of M3 and posterior roots of M2 extend through maxilla into orbital fossa.

Upper incisors slightly procumbent, without grooves; upper and lower molars large and robust; all except M3 longer than wide and forming a graded series (Fig. 5*a, b*). M3 is wider than long. Procingulum of M1 lacks any trace of anterior cuspules, styles, or cingular ridge. Anterolabial and anteromedial conules separated anteriorly by a deep, narrow anteromedial flexus whose internal limit lies close to corresponding end of relatively narrow protoflexus. Anteroflexus short and narrow, and separated from anteromedial flexus by a small enamel island. Anteroloph well developed, but comparatively thin and may or may not be expanded antero-posteriorly at the labial margin of M1. Paraflexus long and terminating before level of medial penetration of hypoflexus in M1 and M2, but extending



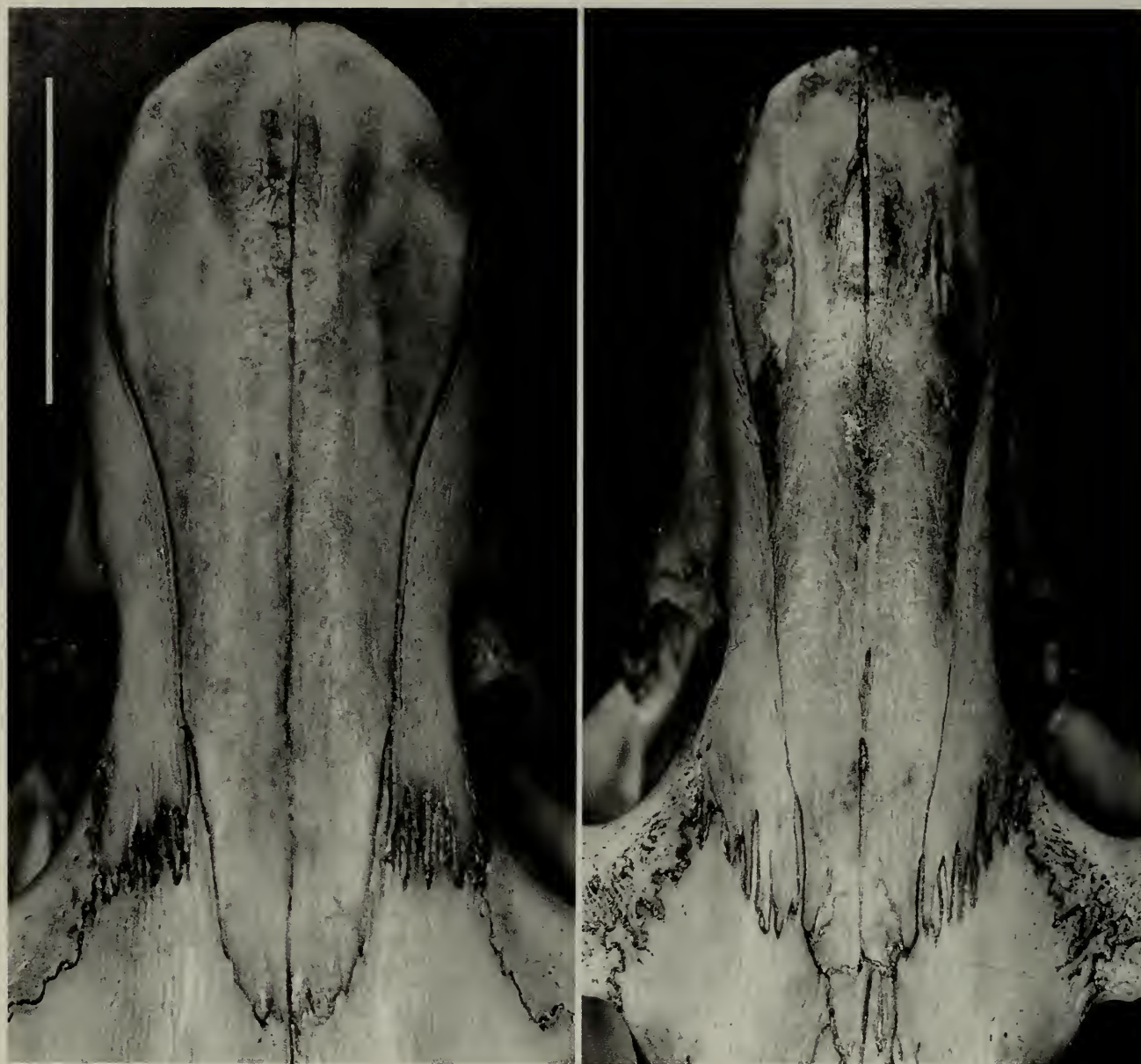


Fig. 6. Nasals of *Thomasomys macrotis*, new species, LSUMZ 27286 (left), and *T. aureus*, USNM 507266 (right). Vertical line equals 5 mm.

posteriorly beyond level of hypoflexus in M3. Mesoflexus moderate in length, not reaching median mure, and extending across tooth approximately one-half the width of paracone in M1 and M2. Mesoflexus relatively longer in M3 and may meet median mure. Metaflexus long, reaching posteroloph in M1 and M2, but poorly developed in M3 as a shallow flexus and one or more small enamel islands. Protoflexus and hypoflexus of M1 narrow; the latter longer and extending approximately half way across tooth in all upper molars. Paraloph joins median mure at juncture with mesoloph.

M3 wider than long (antero-posterior axis), with small hypocone and weakly-developed to absent metacone. General occlusal pattern created by protoloph, hypoloph, posteroloph, and anterior and median mure, takes the form of a sigma ( $\Sigma$ ) in upper left M1 and M2. The pattern in the center of M1 and M2 is an "X" with mesoloph and anterior median mure forming one leg and protocone, protoloph, hypoloph, hypocone, and connecting median mure forming the other.

Lower molars also form a graded series with m3 the smallest and having a complex

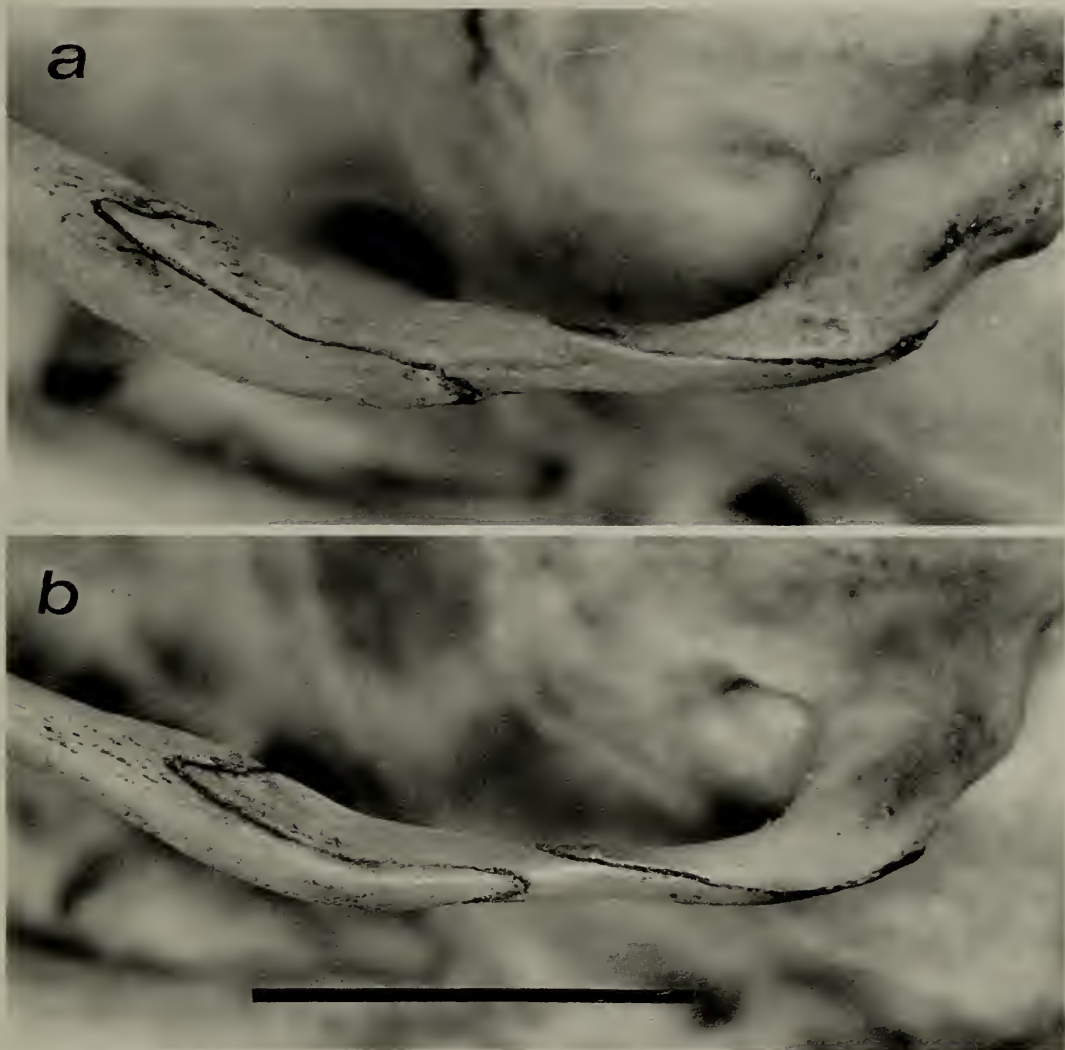


Fig. 7. Lateral view of left zygomatic arches of *Thomasomys macrotis*, new species, LSUMZ 27286 (a), and *T. aureus*, USNM 507266 (b). Horizontal line equals 5 mm.

sigmoid cuspid, murid, and lophid pattern because of an under-developed entoconid (Fig. 5*b, d*). First lower molar characterized by a shallow and narrow anteromedial flexid, and anterolingual and anterolabial conulids coalesce early in wear. Protolophid short, narrow, and not reaching margin of tooth. Outer anterior margin of procingulum in m1 dominated by ridge extending posteriorly from anterolabial conulid to form anterior margin of protoflexid. This ridge appears to be characteristic of *Thomasomys* (s.l.) and has essentially the same position as the anterolabial cingulum of m2 and m3. Anteroflexid obsolete. Metaflexid defined by a shallow indentation on lingual surface of m1 and a transversely elongated

internal enamel island. Mesoflexid terminating before reaching level of inner margin of protoflexid. Mesolophid may or may not reach lingual margin of m1 and m2; where it does, its styloid not fused to either metaconid or entoconid. Entoflexid variable in length and tends to be shorter in m1 than in m2, where it is transversely in line internally with medial penetration of hypoflexid. Metalophids of all three lower molars and the entolophid of m1 oriented slightly anteriorly toward the midline. Entolophid of m2 oriented at right angle to axis of tooth and joins the median mure in line with posterior enamel margin of hypoflexid. Hypoflexid narrow in all molars. Posterolophid variable, usually straight in m1, with

a terminal hook in m2, and crescent shaped in m3 with its terminus fused with rudimentary entoconid and mesolophid.

*Comparisons.* — Except for the tail, whose terminal third is white, and relatively larger ears and hind feet, *T. macrotis* resembles several species of much smaller *Thomasomys* such as *T. ischyurus* Osgood, 1914, and *T. incanus* (Thomas, 1894). Although averaging larger (see Table 1), *T. macrotis* is most similar in size to *T. aureus* from which it can be distinguished externally by darker brown and softer fur dorsally and ventrally, significantly longer (no overlap in measurements) ears and hind feet, and bicolored relatively-shorter tail (averages 1.34 times length of head and body versus 1.43 times [ $n = 14$ ] head and body in *T. aureus*). *Thomasomys aureus* has reddish fur, a distinctly ochraceous venter, and a longer and monocolored tail. Cranially, *T. macrotis* can be readily distinguished from *T. aureus* by wider nasals that terminate distinctly behind premaxillae (compare in Fig. 6), broader postorbital constriction with more rounded borders, larger and deeper jugal (Fig. 7), conspicuously deeper maxilla above M1 than above M3 (Fig. 3), smooth anterior face of procingulum of M1, M3 wider than long, shallow anteromedial flexid and straight posterolophid on m1, and entolophid of m2 joining median murid at right angle to axis of tooth (Fig. 5). In contrast, *T. aureus* has narrower nasals that extend forward of anterior face of incisors and terminate posteriorly at the same level as premaxillae (Fig. 6), narrower postorbital constriction with sharper and more elevated borders, narrower jugal (Fig. 7b), maxilla only little deeper above M1 than above M3 (Fig. 3b), conspicuous anterior cingular ridge with accessory cuspules and styles on procingulum of M1, M3 longer than wide (Fig. 5g), deep anteromedial flexid and crescent-shaped posterolophid on m1, and entolophid of m2 joining mesolophid more or less in line with axis of tooth (Fig. 5h). In measurements, *T. macrotis* averages larger than

*T. aureus* in most dimensions. In the samples at hand, there is no overlap in length of ear, hind foot, and maxillary toothrow, or in breadth across molars, and mastoidal and postorbital breadth, even when young adults of the former are included (see Table 1).

There is little external, cranial, or dental similarity between *T. macrotis* and *T. ape-co*, except that both have a thick jugal and terminally white tail. *Thomasomys ape-co* is significantly larger with no overlap in most dimensions (compare measurements in Table 1) and has coarser, reddish pelage with conspicuous guard hair. Cranially and dentally, *T. ape-co* shares more features with the smaller *T. aureus* than it does with *T. macrotis* and appears to be an outsized member of the *T. aureus* complex. Other than size, *T. macrotis* differs from *T. ape-co* in many of the same ways that it differs from *T. aureus*. Despite its overall smaller size, *T. macrotis* is larger than *T. ape-co* in length of ear and breadth of postorbital constriction (Table 1). *Thomasomys macrotis* shares some dental features with the much larger, extinct *Megaoryzomys curioi* (Niethammer, 1964) known only from the Islas Galápagos of Ecuador (Steadman & Ray 1982). These features include smooth anterior face of procingulum of M1, weakly developed anteromedial flexid in m1 (retained only as an internal enamel island in *M. curioi*), and more medial orientation of paralophs, metalophs, metalophids and entolophids. Nevertheless, on the basis of dental and cranial features, *T. macrotis* is more closely related to *T. ischyurus* Osgood, 1914, and related *Thomasomys*, than with *M. curioi* or members of the *T. aureus* complex.

*Remarks.* — We refer to specimens identified as *T. aureus* as the *T. aureus* complex in the text and Table 1 because we recognize that the name is used currently for three or more morphologically similar species. A thorough review and examination of the group is required before the number of species and their relationships can be estab-

lished. *Thomasomys macrotis* is the second to be described of at least seven new mammals discovered during the Río Abiseo faunal inventory. It is remarkable that the fauna of this region contains such a high number of new taxa, and unfortunate that most of them are represented by single specimens.

Label information for LSUMZ 27285, a female collected 8 Aug 1981, includes the notation that she was nonparous with a vaginal plug. Corresponding information for two males is as follows: LSUMZ 27286, 13 Aug 1981, testes = 9.0 mm, abdominal; LSUMZ 27287, 15 Aug 1981, testes = 17.0 mm, scrotal. USNM 567243, a female, showed no overt evidence of reproductive activity when collected on 11 Aug 1987.

*Additional specimens examined.*—Other specimens we examined are deposited either in the collections of the Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Perú (MUSM); the National Museum of Natural History, Washington, D.C., U.S.A. (USNM [Division of Mammals], USNM-P [Paleobiology]); or are indicated by field numbers (MLL [Mariella Leo L.] and MRR [Mónica Romo R.]). The majority of the latter will be deposited in the MUSM, which previously was commonly referred to in the literature as the Museo de Historia Natural “Javier Prado.” *Thomasomys aureus* complex. COLOMBIA: Cundinamarca, Bogotá, USNM 251957, topotype of *Thomasomys princeps* (Thomas, 1900); Cundinamarca, Choachí, USNM 251956; Cundinamarca, Laguna Vergón [=Laguna del Verjón], USNM 251976. ECUADOR: Pichincha, Río Condor Huachana, 3.45 km NE of Lloa, USNM 513588, 513589. PERU: San Martín, Río Montecristo, ca. 28 km NE of Pataz, Parque Nacional Río Abiseo, MLL 312; San Martín, Puerta del Monte, ca. 26 km (at 60°) from Pataz, Parque Nacional Río Abiseo, MLL 249; San Martín, Las Palmas, ca. 32 km NE of Pataz, Parque Nacional Río Abiseo, MRR 579 and 594, MLL 340 and 343; San Martín, Las Papayas, ca. 32 km NE of

Pataz, Parque Nacional Río Abiseo, MLL 390; Junín, Río Palca, 15 km W of San Ramón, USNM 507265 and 507266; Cuzco, Torontoy, 3260 m, USNM 194818, 194820, and 194821; Cuzco, Tocopoque [=Tocopogueyu], Occobamba Valley, USNM 194822-194828. *Thomasomys ape-co*. PERU: San Martín, Valle de Los Chochos, ca. 25 km NE of Pataz, 3280 m, Parque Nacional Río Abiseo, MUSM 7197, 7199; San Martín, Pampa del Cuy, ca. 24 km NE of Pataz, 3260–3380 m, Parque Nacional Río Abiseo, MUSM 7196, 7198, 7201, 7202, 7203, 7204; San Martín, Puerta del Monte, ca. 26 km (at 60°) from Pataz, 3250 m, Parque Nacional Río Abiseo, MUSM 7200. *Megaoryzomys curioi*. ECUADOR: Islas Galápagos, Isla Santa Cruz, USNM-P 284204 (15 molars), USNM-P 284213 (mandible with m2 and m3), USNM-P 284276 (right M1), USNM-P 284283 (right mandible); USNM-P 284287 (right m1), USNM-P 284343 (right mandible with all molars), USNM-P 284346 (right mandible with m1).

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